

nephritis. Pneumonia and colitis have been present in some epidemics. Icterus has been seen.

Diagnosis.—The mildness of the case, the slightness of the prodromal symptoms, the mildness or the absence of the fever, the more diffuse character of the rash, its rose-red color, and the early enlargement of the cervical glands, are the chief points of distinction between röteln and measles.

The treatment is that of a simple febrile affection. It is well to keep the child in bed, though this may be difficult, as the patient rarely feels ill.

X. EPIDEMIC PAROTITIS (*Mumps*).

Definition.—An infectious disease, characterised by inflammation of the parotid gland. The testes in males and the ovaries and breasts in females are sometimes involved.

Etiology.—The nature of the virus is unknown. It is probably a micro-organism, and a *bacillus parotidis* has been described.

The affection has all the characters of an epidemic disease. It is said to be endemic in certain localities, and probably is so in large centres of population. At certain seasons, particularly in the spring and autumn months, the number of cases increases rapidly. It is met most frequently in childhood and adolescence. Very young infants and adults are seldom attacked. Males are somewhat more frequently affected than females. In institutions and schools the disease has been known to attack over 90 per cent of all the children. It may be curiously localised in a city or district. The disease is contagious and spreads from patient to patient.

A remarkable idiopathic, non-specific parotitis may follow injury or disease of the abdominal or pelvic organs. Stephen Paget* has collected 101 cases of this kind, the majority of which were not associated with septic processes.

Symptoms.—The period of incubation is from two to three weeks, and there are rarely any symptoms during this stage. The invasion is marked by fever, which is usually slight, rarely rising above 101°, but in exceptionally severe cases going up to 103° or 104°. The child complains of pain just below the ear on one side. Here a slight swelling is noticed, which increases gradually, until, within forty-eight hours, there is great enlargement of the neck and side of the cheek. The swelling passes forward in front of the ear, and back beneath the sterno-cleido muscle. The other side usually becomes affected within a day or two. The submaxillary glands may also be involved. The greatest inconvenience is experienced in taking food, for the patient is unable to open the mouth, and

* British Medical Journal, March 19, 1887.

even speech and deglutition become difficult. There may be an increase in the secretion of the saliva, but the reverse is sometimes the case. There is seldom great pain, but, instead, an unpleasant feeling of tension and tightness. There may be earache and slight impairment of hearing.

After persisting for from seven to ten days, the swelling gradually subsides and the child rapidly regains his strength and health. Relapse rarely if ever occurs.

Occasionally the disease is very severe and characterised by high fever, delirium, and great prostration. The patient may even lapse into a typhoid condition.

One of the most remarkable features of the disease is a tendency to involvement of the testes. This most frequently occurs after the affection of the salivary glands has subsided. The swelling may be great, and occasionally effusion takes place into the tunica vaginalis. The orchitis is in some instances unilateral, involving the right testicle. The inflammation increases for three or four days, and resolution takes place gradually. Occasionally there may be a muco-purulent discharge. In severe cases atrophy may follow. Orchitis is rarely seen before puberty.

A vulvo-vaginitis sometimes occurs in girls, and the breasts may become enlarged and tender. Involvement of the ovaries is rare.

Complications and Sequelæ.—Of these the cerebral affections are perhaps the most serious. As already mentioned, there may be delirium and high fever. In rare instances meningitis has been found. Hemiplegia and coma may also occur. A majority of the fatal cases are associated with meningeal symptoms. These, of course, are very rare in comparison with the frequency of the disease; yet, in the Index Catalogue, under this caption, there are six fatal cases mentioned. In some epidemics the cerebral complications are much more marked than in others. Acute mania has occurred, and there are instances on record of insanity following the disease.

Arthritis is an occasional complication. Albuminuria, with convulsions, has been described. Fatal cases have occurred from acute uræmia.

Suppuration of the gland is an extremely rare complication in genuine idiopathic mumps. Gangrene has occasionally occurred. The special senses may be seriously involved. Many cases of deafness have been described in connection with or following mumps. The deafness, unfortunately, may be permanent. Affections of the eye are rare, but atrophy of the optic nerve has been described.

The diagnosis of the disease is usually easy. The position of the swelling in front of and below the ear and the elevation of the lobe on the affected side definitely fix the locality of the swelling. In children inflammation of the parotid, apart from ordinary mumps, is excessively rare.

Treatment.—It is well to keep the patient in bed during the height of the disease. The bowels should be freely opened, and the patient given a light liquid diet. No medicine is required unless the fever is high, in

which case aconite may be given. Cold compresses may be placed on the gland, but children, as a rule, prefer hot applications. A pad of cotton wadding covered with oiled silk is the best application. Suppuration is almost unknown, and need not be dreaded, even though the gland become very tense. Should redness and tenderness develop, leeches may be used. With delirium and head symptoms the ice-cap may be applied. In a robust subject, unless the signs of constitutional depression are extreme, a free venesection may do good. For the orchitis, rest, with support and protection of the swollen gland with cotton-wool, is usually sufficient.

XI. WHOOPING-COUGH.

Definition.—A specific affection characterised by convulsive cough and a long-drawn inspiration, during which the "whoop" is produced.

Etiology.—The disease occurs in epidemic form, but sporadic cases appear in a community from time to time. It is directly contagious from person to person; but dwelling-rooms, houses, school-rooms, and other localities may be infected by a sick child. It is, however, in this way less infectious than other diseases, and is probably most often taken by direct contact. The nature of the virus is still doubtful, many organisms having been described in the sputum. The observations of Afanassjew in 1887 have been the most satisfactory. He has cultivated a short bacillus, which grows with well-marked characters, and, when inoculated into the trachea of animals, produces a catarrhal condition of the mucous membrane. Cornil and Babes* conclude that the organism has not characteristics sufficiently pronounced, or an influence on animals sufficiently characteristic, to enable us to say that it is specific. Epidemics prevail for two or three months, usually during the winter and spring, and have a curious relation to other diseases, often preceding or following measles, less frequently scarlet fever.

Children between the first and second dentition are commonly affected. Sucklings are, however, not exempt, and I have seen very severe attacks in infants under six weeks. It is stated that girls are more subject to the disease than boys. Adults and old people are sometimes attacked, and in the aged it may be a very serious affection. Many persons possess immunity against the disease, and, though frequently exposed, escape. Delicate anæmic children with nasal or bronchial catarrh are more subject to the disease than others. According to the United States Census Reports, the disease is more than twice as fatal in the negro race than in others.

Morbid Anatomy.—Whooping-cough itself has no special pathological changes. In fatal cases pulmonary complications, particularly broncho-pneumonia, are usually present. Collapse and compensatory em-

* Les Bactéries, 1890.

physema, vesicular and interstitial, are found, and the tracheal and bronchial glands are enlarged.

Symptoms.—Catarrhal and paroxysmal stages can be recognized. There is a variable period of incubation of from seven to ten days. In the *catarrhal stage* the child has the symptoms of an ordinary cold, which may begin with slight fever, running at the nose, injection of the eyes, and a bronchial cough, usually dry and sometimes giving indications of a spasmodic character. The fever is usually not high, and slight attention is paid to the symptoms, which are thought to be those of an ordinary cold. After lasting for a week or ten days, instead of subsiding, the cough becomes worse and more convulsive in character.

The *paroxysmal stage*, marked by the characteristic cough, dates from the first appearance of the "whoop." The fit begins with a series of from fifteen to twenty short coughs of increasing intensity, and then with a deep inspiration the air is drawn into the lungs, making the "whoop," which may be heard at a distance and from which the disease takes its name. This loud inspiratory sound may sometimes precede the series of spasmodic expiratory efforts. Several coughing-fits may succeed each other until a tenacious mucus is expectorated. This may be small in amount, but after a series of coughing-fits a considerable quantity may be expectorated. Not infrequently it is brought up by vomiting or by a combination of cough and regurgitation. There may be only four or five of these attacks in the day, or in severe cases they may recur every half-hour. During the attack the thorax is very strongly compressed by the powerful expiratory efforts, and, as very little air passes in through the glottis, there are signs of defective aëration of the blood; the face becomes swollen and congested, the veins are prominent, the eyeballs protrude, and the conjunctivæ become deeply engorged. Suffocation indeed seems imminent, when with a deep crowing inspiration air enters the lungs and the color is quickly restored. Children are usually terrified at the onset, and run at once to the mother or nurse to be supported during the attack. Few diseases are more painful to witness. In severe paroxysms vomiting is frequent and the sphincters may be opened.

An ulcer under the tongue is a very common event, and was thought at one time to be the cause of the disease.

During the attack, if the chest be examined, the resonance is defective in the expiratory stage, full and clear during the deep, crowing inspiration; but on auscultation during the latter there may be no vesicular murmur heard, owing to the slowness with which the air passes the narrowed glottis. Bronchial râles are occasionally heard.

Among circumstances which precipitate an attack are emotion, such as crying, and any irritation about the throat. Even the act of swallowing sometimes seems sufficient. In a close dusty atmosphere the coughing-fits are more frequent. After lasting for three or four weeks the attacks